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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/579,992	PANDEL ET AL.	
	Examiner	Art Unit	
	JESSICA CLIFTON	4144	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *05/19/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Objections

1. Claims **18, 23, 24** are objected to because of the following informalities: Claims **18, 23, 24** use the word **info-packet(s)**. The disclosure uses the phrase **information packet(s)**. For consistency info-packet(s) should be changed to information packet(s) in order to align with the disclosure. Examiner will examine the claims reflecting this change. Appropriate correction is required.

2. Claims **18, 20, 33, 34** are objected to because of the following informalities: Claims **18, 20, 33, 34** use the word "**group**". However, the use of the word "**group**" should be changed to indicate a "**data packet group**". Examiner will examine the claims reflecting this change. Appropriate correction is required.

3. Claim **26** is objected to because of the following informalities: The claim language is unclear because the use of the word "**if**". Examiner will examine the claim with the word "**if**" changed to "**is**". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 18, 20-21, 29, 32-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Currivan (US Pub. No. 2003/0031198).

As per claim 18, Currivan disclose **a method for transmission of digital information packets in a data network from an emitter to a receiver** (Currivan, Abstract, discloses transmitting data packets over a communications channel to receiver)**, the information packets transported via a transport layer** (Internet Protocol uses the transport layer. Paragraph [0059], discloses Internet Protocol (IP) communication. , **the method comprising:**

dividing the information packets to be transmitted in the emitter into one or more data packet groups (Paragraph [0084], discloses grouping information segments)**;**

for each data packet group:

inserting redundancy (i.e. redundant/parity/crc) **packets into the data packet group** (Paragraph [0012], discloses generating parity segments)**;**

receiving the data packet group by the receiver (The data packet consists of both parity and information segments/packets. Paragraph [0012], discloses the receiver collecting both the parity and information segments)**;**

transmitting the data packet group to the receiver (Paragraph [0012] discloses transmitting parity and information segments to the receiver)**;**

including in the data packet group for each information packet, a first signalization field comprising a information packet position field (i.e. field which identifies the column/row) **that provides a position of the information packet in the data packet group** (Currivan, Paragraph [0007], discloses that FEC involves the addition of information to data for transmission to detect errors and correct data. Paragraph [0098-100], discloses information bits used to identify position of information and parity segments in the form: s_1d_1 . Figure 7, illustrates the matrix format which includes the information bits that correspond to the position of the information segment, section 702, in the matrix with respect to row location)**;**

including in the data packet group for each redundancy packet, a second signalization field comprising a redundancy-packet position field (i.e. field which identifies the column/row) **that provides a position of the redundancy** (i.e. redundant/parity/crc) **packet in the respective packet group** (Currivan, Paragraph [0007], discloses that FEC involves the addition of information to data for transmission to detect errors and correct data. Paragraph [0098-100], discloses information bits used to identify position of information and parity segments in the form: s_1d_1 . Figure 7, illustrates the matrix format which includes the information bits that correspond to the position of the parity segment, second section 704, in the matrix with respect to row location)**; and**

reconstructing the data packet group by the receiver by using the signalization fields to determine the positions of the packets (Currivan, Paragraph [0100], discloses identification bits establish order of original encoded segments. Paragraph [0102], discloses the CMTS receiving the data. Paragraph [0103], discloses that the CMTS uses the identification bits to re-assemble segments into correct alignment).

a last indicator that indicates if the redundancy packet (i.e. redundant/parity/crc) **is the last packet in the data packet group** (Paragraph [0087], discloses that the identification bits may be used as a counter to determine the order of parity segments).

As per claim 20, Currivan teaches **the method according to claim 18.** Currivan further teaches **wherein the first signalization field comprises a last indicator that indicates if the information packet is the last information packet in the respective data packet group** (Paragraph [0087], discloses that the identification bits may be used as a counter to determine the order of parity segments).

As per claim 21, Currivan teaches **the method according to claim 18.** Currivan further teaches **wherein each data packet group is arranged according to a data matrix comprising a plurality of data fields in a plurality of rows for the information packets, a plurality of rows for the redundancy packets, and a**

plurality of columns for information and redundancy (i.e. redundant/parity) **packets** (A plurality of data fields is consistent with multiple rows and columns that construct a matrix. A plurality of rows and/or columns is understood to be more than one row and/or column. Currivan, Paragraph [0084-6], discloses separating packets into groups, k, of information segments which are arranged into rows and columns. The constructed rows and columns include information segments and parity segments).

As per claim 29, Currivan teaches **the method according to claim 18.** Currivan further teaches **wherein the redundancy packets comprise Reed-Solomon codes** (Paragraph [0007], discloses the use of Reed-Solomon codes)**.**

As per claim 32, Currivan teaches **the method according to claim 18.** Currivan further teaches **wherein the data network comprises a mobile radio** (i.e. wireless) **network** (Paragraph [0058], discloses the use of a wireless communication systems)**.**

As per claim 33, Currivan teaches **a method for enabling an emitter to send digital information packets, comprising** (Currivan, Abstract, discloses transmitting data packets over a communications channel to receiver)**:**

dividing the information packets to be transmitted by the emitter into one or more data packet groups (Paragraph [0084], discloses grouping information segments)**;**

inserting redundancy (i.e. redundant/parity/crc) **packets into each data packet group** (Paragraph [0012], discloses generating parity segments)**;**

transmitting the data packet groups to a receiver (Paragraph [0012] discloses transmitting parity and information segments to the receiver);

including for each of the information packets, a first signalization field comprising a information packet position field that provides a position of the information packet in the respective data packet group (Currivan, Paragraph [0007], discloses that FEC involves the addition of information to data for transmission to detect errors and correct data. Paragraph [0098-100], discloses information bits used to identify position of information and parity segments in the form: s_1d_1 . Figure 7, illustrates the matrix format which includes the information bits that correspond to the position of the information segment, first section 702, in the matrix with respect to row location)**;**

including for each of the redundancy packets, a second signalization field comprising a redundancy-packet position field that provides a position of the redundancy packet in the respective data packet group (Currivan, Paragraph [0007], discloses that FEC involves the addition of information to data for transmission to detect errors and correct data. Paragraph [0098-100], discloses information bits used

to identify position of information and parity segments in the form: s_1d_1 . Figure 7, illustrates the matrix format which includes the information bits that correspond to the position of the parity segment, second section 704, in the matrix with respect to row location);

a last indicator that indicates if the redundancy packet (i.e. redundant/parity/crc) **is the last packet in the respective data packet group** (Paragraph [0087], discloses that the identification bits may be used as a counter to determine the order of parity segments).

As per claim 34, Currivan teaches **a method for enabling a receiver to receive digital information packets** (Figure 1), **comprising:**
receiving a data packet group by the receiver, the data packet group having a plurality of information packets and a plurality of packets (A plurality of packets is more than one segment. The data packet consists of both parity and information segments/packets. Paragraph [0012], discloses the receiver collecting both the parity and information segments);

each information packet including a first signalization field comprising a info- packet position field that provides a position of the information packet in the data packet group (Currivan, Paragraph [0007], discloses that FEC involves the addition of information to data for transmission to detect errors and correct data.

Paragraph [0098-100], discloses information bits used to identify position of information and parity segments in the form: s_1d_1 . Figure 7, illustrates the matrix format which includes the information bits that correspond to the position of the information segment, section 702, in the matrix with respect to row location),

each redundancy packet including a second signalization field comprising a redundancy-packet position field that provides a position of the redundancy packet in the data packet group (Currivan, Paragraph [0007], discloses that FEC involves the addition of information to data for transmission to detect errors and correct data. Paragraph [0098-100], discloses information bits used to identify position of information and parity segments in the form: s_1d_1 . Figure 7, illustrates the matrix format which includes the information bits that correspond to the position of the parity segment, second section 704, in the matrix with respect to row location)

reconstructing the data packet group using the signalization fields to determine the positions of the packets (Currivan, Paragraph [0100], discloses identification bits establish order of original encoded segments. Paragraph [0102], discloses the CMTS receiving the data. Paragraph [0103], discloses that the CMTS uses the identification bits to re-assemble segments into correct alignment)**; and**

a last indicator that indicates if the redundancy packet is the last packet in the data packet group (Paragraph [0087], discloses that the identification bits may be used as a counter to determine the order of parity segments)**.**

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination Currivan (US Pub. No. 2003/0031198) and further in view of Belser (US Patent No. 5,737,344).

As per claim 19, Currivan teaches **the method according to claim 18.**

Currivan is silent on **wherein the first and second signalization fields comprise a type flag that indicates if the respective packet is an information packet or a redundancy packet**.

However, Belser, in an analogous art teaches **wherein the first and second signalization fields comprise a type flag that indicates if the respective packet is an information packet or a redundancy packet**. (Belser, Col. 4, lines 33-51, discloses a parity flag and a data item flag which identifies whether the respective parity or data item region contains data or parity)**.**

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Currivan to include **wherein the first and second signalization fields comprise a type flag that indicates if the respective packet is an information packet or a redundancy packet** as taught in Belser for the purpose of identifying packets for efficient data reconstruction.

6. Claims 22-24, 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Currivan.

As per claim 22, Currivan teaches **the method according to claim 18.**

Currivan is silent on **wherein the data fields** (i.e. symbols) **are 8-bit fields.**

Absent of any criticality, it would have been a matter of design choice or given the general environment, it would have been obvious to obtain an optimal value by routine experimentation. Therefore, the claim limitation **wherein data fields are 8-bit fields** would have been attainable for the purpose of efficient data transmission for one of ordinary skill in the art at the time the invention was made.

As per claim 23, Currivan teaches **the method according to claim 22.**

Currivan further discloses **wherein the information packet position field includes the data matrix column of the information packet** (Currivan, Paragraph [0098-100], discloses information bits used to identify position of information and parity segments in the form: s_1d_1. Figure 7, illustrates the matrix format which includes the information bits that correspond to the position of the information segment, first section 702, in the matrix with respect to row and column location).

As per claim 24, Currivan teaches **the method according to claim 22.** Currivan further discloses **wherein the information packet position field includes the data matrix row of the information packet** (Currivan, Paragraph [0098-100], discloses information bits used to identify position of information and parity segments in the form:

s_1d_1. Figure 7, illustrates the matrix format which includes the information bits that correspond to the position of the information segment, first section 702, in the matrix with respect to row location).

As per claim 27, Currivan teaches **the method according to claim 22.** Currivan further teaches **wherein the second signalization field comprising two parameters selected from the data packet group consisting of a packet number** (i.e. identification bits)**, a row position, and a number of rows** (Currivan, Paragraph [0098-100], discloses information bits used to identify position of information and parity segments in the form: s_1d_1 . Where "d" denotes a row and the "1" denotes the number of rows. Identification bits establish order of original encoded segments. Figure 7, illustrates the matrix format which includes the information bits that correspond to the position of the parity segment, second section 704, in the matrix with respect to row location)**, wherein the packet number** (i.e. identification bits) **is a number of the redundancy** (i.e. redundant/parity) **packet relative to other redundancy** (i.e. redundant/parity) **packets in the respective data packet group** (Currivan, Paragraph [0100], discloses that identification bits identify the parity segments. Figure 7, illustrates the use of sequential identification bits relative to other parity segments)**, wherein the row position indicates the redundancy packet position, and wherein the number of rows is the number of rows occupied by the information packets in the data matrix** (Currivan, Paragraph [0098-100], discloses information bits used to identify position of information and parity segments in the form: s_1d_1 . Figure 7, illustrates the

matrix format which includes the information bits that correspond to the position of the information segment, first section 702, in the matrix with respect to row location).

As per claim 28, Currivan teaches **the method according to claim 27.** Currivan further teaches **wherein the number of rows is used by the receiver to reconstruct the data packet group** (Currivan, Paragraph [0098-100], discloses information bits used to identify position of information and parity segments in the form: s_1d_1 . Where "d" denotes a row and the "1" denotes the number of rows. Identification bits establish order of original encoded segments. Paragraph [0102], discloses the CMTS receiving the data. Paragraph [0103], discloses that the CMTS uses the identification bits are used to re-assemble segments into correct alignment).

7. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Currivan and further in view of Willenegger et al. (US Pub. No. 2003/0207696).

As per claim 25, Currivan as modified teaches **the method according to claim 22.**

Currivan as modified does not teach **wherein each redundancy packet occupies one data matrix row.**

However, Willenegger, in an analogous art teaches **wherein each redundancy packet occupies one data matrix row** (Figure 4F, illustrates parity data occupying a row in the matrix).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Currivan as modified to include **wherein each redundancy packet occupies one data matrix row** as taught in Willenegger for the purpose of forming a signal block structure.

8. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Currivan and further in view of Tsunoda (US Pub. No. 2003/0005387).

As per claim 26, Currivan as modified teaches **the method according to claim 22.** Currivan as modified further teaches **wherein a row length of the data matrix is reconstructed** (Currivan, Paragraph [0100], discloses identification bits establish order of original encoded segments. Paragraph [0102], discloses the CMTS receiving the data. Paragraph [0103], discloses that the CMTS uses the identification bits to re-assemble segments into correct alignment).

Currivan as modified does not specifically disclose that the matrix is reconstructed **from a length of a correctly received redundancy** (i.e. redundant/parity/crc) **packet.**

However, the method of reconstructing a matrix using a correctly received redundancy packet would be obvious to one of ordinary skill in the art because it is well known that parity/redundancy packet represent an entire row length of an information segment matrix as illustrated by Willenegger in Figure 4F.

9. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination Currivan and further in view of Agarwal (US Pub. No. 2004/0179486).

As per claim 30, Currivan as modified teaches **the method according to claim 18.**

Currivan as modified is silent on **wherein the first and second signalization fields are 24-bit fields.**

However, a signal field of 24-bits is a practical range for a frame length which is well known and widely used in the prior art. For Example, Agarwal teaches a method and apparatus for segmentation, reassembly and inverse multiplexing of packets over a wireless network. (Paragraph [0007] & Figure 6, discloses a routing field of 24 bits). Absent of any criticality, it would have been a matter of design choice or given the general environment, it would have been obvious to obtain an optimal length of 24-bits by routine experimentation. The claim limitation of 24-bits would have been attainable for one of ordinary skill in the art at the time the invention.

10. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination Currivan and further in view of Burke (US Pub. No. 2002/0141338).

As per claim 31, Currivan as modified teaches **the method according to claim 18.**

Currivan as modified does not teach **after receiving the packet of a group waits for an interval of time for outstanding information packets or redundancy packets of the group**.

However, Burke, in an analogous art teaches teach **after receiving the packet of a group waits for an interval of time for outstanding information packets or redundancy packets of the group** (Burke, Paragraph [0014], discloses the use of sequence numbers to determine packet order. Abstract, discloses waiting for late packets).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Currivan to include **after receiving the packet of a group waits for an interval of time for outstanding information packets or redundancy packets of the group** as taught in Burke for the purpose of reconstructing the signal.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Sachs et al. (US Pub. No. 2002/0080802) discloses method for multimedia communication over packet channels. Schuster et al. (US Patent 6,487,690) discloses forward error correction system for packet based real time media.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA CLIFTON whose telephone number is

(571)270-7156. The examiner can normally be reached on Monday-Thursday, 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Taghi Arani can be reached on (571) 272-3787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Taghi T. Arani/

Supervisory Patent Examiner, Art Unit 4144